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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/733,052

12/11/2003

Satoshi Maeda

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7590

06/28/2005

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EXAMINER

HAN, JASON

ART UNIT

PAPER NUMBER

2875

DATE MAILED: 06/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

H.A

Office Action Summary

Application No.

10/733,052

Applicant(s)

MAEDA ET AL.

Examiner

Jason M. Han

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 May 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2 and 7-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 7-9 and 13-15 is/are allowed.
- 6) ☒ Claim(s) 1,2 and 10-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☒ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to Claims 1-2 and 10-12 have been considered but are moot in view of the new ground(s) of rejection.
2. Applicant's arguments, see Pages 7-11, filed May 12, 2005, with respect to Claims 7-9 and 13-15 have been fully considered and are persuasive. The rejection of claims has been withdrawn.

Claim Objections

3. Claim 12 is objected to because of the following informalities: Applicant defines a second phase modulation element. However, Claim 10 never recites a first modulation element, which Claim 12 is dependent upon. Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Onishi et al. (U.S. Patent 6086212) in view of Sasagawa et al. (U.S. Patent 6636283).
5. With regards to Claim 1, Onishi discloses a lighting device including:
 - A light guide plate in the shape of a flat plate [Figure 1C: (3)];
 - A light source unit disposed on the side guide plate [Figure 1: (2, 8)]; and

- A polarization separation element [Figure 1C: (11)] disposed between the light guide plate and the light source unit, for transmitting linearly polarized light in a first polarized direction and reflecting linearly polarized light in a polarized direction normal to the first polarized direction [Column 6, Line 43 – Column 7, Line 31].

Onishi does not specifically teach the light source unit including a pillar-shaped light guide which light exits at a first side surface, a spot light emission source disposed on the end surface of the pillar-shaped light guide, and a reflecting layer disposed on a second side surface of a prism surface opposed to the first side surface for reflecting light from the spot light emission source, where said reflecting layer is shaped to correspond to said prism surface and is comprised of one of a metal film or a multi-layer film.

Sasagawa teaches a light source unit including a pillar-shaped light guide [Figure 23: (2)] which light exits at a first side surface [Figures 24A-B: (2a)], a spot light emission source [Figure 23: (3)] disposed on the end surface of the pillar-shaped light guide, and a reflecting layer [Figures 24A-B: (11)] disposed on a second side surface [Figures 24A-B: (2b)] of a prism surface [Figures 24A-C: (12)] opposed to the first side surface for reflecting light from the spot light emission source, where said reflecting layer is shaped to correspond to the prism surface and is composed of a metal film [Column 5, Lines 30-33].

It would have been obvious to one ordinarily skilled in the art at the time of invention to use the spot light emission source with the pillar-shaped light guide of

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Sasagawa for the lighting device of Onishi, in order to provide a linear light source which lights up an object surface so that its luminance distribution is symmetrical with respect to the length of the linear light source. Spot light sources are generally LEDs, which are powerful and inexpensively available, and allow for manufacturing of a smaller, lighter, and efficient light source.

6. With regards to Claim 2, Onishi in view of Sasagawa discloses the claimed invention as cited above. In addition, Onishi teaches a quarter wave plate being disposed adjacent to the polarizing means [Column 6, Lines 46]. Though Onishi nor Sasagawa specifically teaches a phase modulation element disposed between the light source unit and the polarization separation element, it would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate a quarter wave plate between the light source and polarizing means, since it has been held that rearranging parts of an invention involves only routine skill in the art. *In re Japiske*, 86 USPQ 70. In this case, utilizing the position of the wave plate may alter the illumination and provide a desired optical effect [e.g., circular to linear polarization].

7. Claims 10-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Onishi et al. (U.S. Patent 6086212) in view of Sasagawa et al. (U.S. Patent 6636283).

8. With regards to Claim 10, Onishi discloses a liquid crystal display device including:

- A liquid crystal panel [Figure 7: (12)];
- A light guide plate in the shape of a flat plate [Figure 1C: (3)];
- A light source unit disposed on the side guide plate [Figure 1: (2, 8)]; and

- A polarization separation element [Figure 1C: (11)] disposed between the light guide plate and the light source unit, for transmitting linearly polarized light in a first polarized direction and reflecting linearly polarized light in a polarized direction normal to the first polarized direction [Column 6, Line 43 – Column 7, Line 31].

Onishi does not specifically teach the light source unit including a pillar-shaped light guide which light exits at a first side surface, a spot light emission source disposed on the end surface of the pillar-shaped light guide, and a reflecting layer disposed on a second side surface of a prism surface opposed to the first side surface for reflecting light from the spot light emission source, where said reflecting layer is shaped to correspond to said prism surface and is comprised of one of a metal film or a multi-layer film.

Sasagawa teaches a light source unit including a pillar-shaped light guide [Figure 23: (2)] which light exits at a first side surface [Figures 24A-B: (2a)], a spot light emission source [Figure 23: (3)] disposed on the end surface of the pillar-shaped light guide, and a reflecting layer [Figures 24A-B: (11)] disposed on a second side surface [Figures 24A-B: (2b)] of a prism surface [Figures 24A-C: (12)] opposed to the first side surface for reflecting light from the spot light emission source, where said reflecting layer is shaped to correspond to the prism surface and is composed of a metal film [Column 5, Lines 30-33].

It would have been obvious to one ordinarily skilled in the art at the time of invention to use the spot light emission source with the pillar-shaped light guide of

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Sasagawa for the lighting device of Onishi, in order to provide a linear light source which lights up an object surface so that its luminance distribution is symmetrical with respect to the length of the linear light source. Spot light sources are generally LEDs, which are powerful and inexpensively available, and allow for manufacturing of a smaller, lighter, and efficient light source.

9. With regards to Claim 11, Onishi in view of Sasagawa discloses the claimed invention as cited above. In addition, Onishi teaches a quarter wave plate being disposed adjacent to the polarizing means [Column 6, Lines 46]. Though Onishi nor Sasagawa specifically teaches a phase modulation element disposed between the light source unit and the polarization separation element, it would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate a quarter wave plate between the light source and polarizing means, since it has been held that rearranging parts of an invention involves only routine skill in the art. *In re Japiske*, 86 USPQ 70. In this case, utilizing the position of the wave plate may alter the illumination and provide a desired optical effect [e.g., circular to linear polarization or vice versa].

10. With regards to Claim 12, Onishi in view of Sasagawa discloses the claimed invention as cited above. In addition, Onishi teaches a phase modulation element being disposed between the liquid crystal panel and the lighting device [Column 3, Lines 17-20]. Though Onishi nor Sasagawa specifically teaches a first and second phase modulation element, it would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate multiple wave/phase plates, since it has

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been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8. In this case, utilizing the multiple phase plates may alter the illumination and provide a desired optical effect. Please further note the teaching of Taira et al. (U.S. Patent 5712694), as cited in the previous Office Actions, with respect to multiple phase plates altering the illumination.

Allowable Subject Matter

11. Claims 7-9 and 13-15 are allowed.

12. The following is an examiner's statement of reasons for allowance:

With regard to Independent Claims 7 and 13, the applicant has sufficiently amended and narrowly defined the claims over the prior art, wherein a light guide of a light source unit includes a prism surface for emitting linearly polarized light from the light source unit without the use of a polarization separation element. The prior art fails to teach or suggest the combination of structural elements disclosed and claimed herein, and all subsequent dependent claims are allowed.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."


Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason M. Han whose telephone number is (571) 272-2207. The examiner can normally be reached on 8:00am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sandra O'Shea can be reached on (571) 272-2378. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JMH (6/16/2005)


Stephen Husar
Primary Examiner